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DIRECT FOREIGN PRIVATE INVESTMENT IN SOUTH KOREA: AN ECONOMIC SURVEY

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INTRODUCTION

This paper will review the trend and pattern of direct foreign private investment in South Korea from its incepation in 1962 to the end of 1976 in terms of the country of origin, motives, and industrial distribution of other characteristics of foreign-invested firms, and will measure, to an extent possible, the impact of foreign-invested firms on the economy of South Korea in terms of their effects on output, export, employment, technology transfer, capital formation, and so on.

This study will deal with all the forms of direct foreign private investment, whether wholly-owned or joint-ventures, and whether multinationals or not. The terms like foreign firms, foreign investors, foreign-invested firms, and direct foreign private investment will be all used synonymously. The sources of data employed in this study are of the following three kinds.

The first kind consists of the published sources of "official" data, including statistical yearbooks, industrial census, annual reports of sample surveys on business firms, and so on. The data of this kind are too aggregate to be useful to a microeconomic analysis of the behavior of foreign investors. The second kind consists of the original data sheets filled out by individual foreign firms covered in the Korean government's recent survey on the operations of foreign-invested firms. The special survey on foreign-invested firms that was carried out in the mid-1975 has been proved to be most useful to this study. The third kind is an information gathered from my own interview study on a small number of foreign and local firms. The interview study was carried out mainly to collect first-hand data on the matters relating to the transfer of technology through the operations of foreign-invested firms.

I. TREND AND PATTERN OF DIRECT FOREIGN PRIVATE INVESTMENT

Country of Origin

In August, 1962, the first case of direct foreign private investment project, a U.S.-Korea joint-venture firm producing nylon filaments, was approved by the Government of the Republic of Korea. The company was jointly established by Hankuk Nylon Co. on the Korean side and Chemtex Inc. on the U.S. side, with an initial equity capital of US$1,370,000 and a 50:50 equity ratio. As shown in Table I-1, the number of foreign investment projects increased steadily up to 1967 rapidly increased from 1968 to 1974, and then dropped sharply between 1975 and 1976. At the end of 1976, the total number of foreign-invested firms operating in South Korea was 865, and the total value of foreign investment amounted to US$953,724,000.

From the inception of direct foreign investment in 1962 to the end of 1968, the United States was a single largest investor, and accounted for 81.7 percent of the total value of US$74.8 million at the end of 1968. Japan invested only

TABLE I-1

TREND IN FOREIGN EQUITY INVESTMENT APPROVED
(As of the End of 1976)

Unit: thousand U.S. dollars

Year	No. of Project	Amount
1962	1	3,927
1963	3	5,623
1964	2	333
1965	6	20,910
1966	8	1,524
1967	14	12,869
1968	25	12,036
1969	32	34,737
1970	74	58,700
1971	80	32,537
1972	145	122,938
1973	271	262,246
1974	120	120,685
1975	41	199,553
1976	44	65,106
Total	865	953,724

Sources: Economic Planning Board (EPB).

US$5.9 million, accounting for only 7.9 percent of the total value of investment for the same period. A quite reversal trend is noted with 1969 as a turning point, as shown in Table I-2. From 1969 on, Japanese investment has grown far more rapidly than the U.S. investment in terms of both the number and total value of investment projects. The predominance of Japanese investment is much more pronounced between 1975 and 1976 than before. Investment by Japan and U.S. made up about 83 percent of total direct foreign private investment in South Korea at the end of 1976. The share in total foreign investment by other countries remained negligible throughout the entire period between 1962 and 1976.

It is interesting to note that the average size of the U.S. investment for the period between 1962 and 1976 was about US$1.5 million whereas that of Japanese investment for the same period was only US$0.9 million. About 11 percent of all the Japanese investments was made by Korean residents in Japan, and the average size of their investment was relatively small.

Motives

TABLE I-2

FOREIGN EQUITY INVESTMENT BY COUNTRY
(As of the End of 1976)

Unit: thousand U.S. dollars

	1962 - 1968			1969 - 1974			1975 - 1976		
	Number of Project	Amount	Composition (%)	Number of Project	Amount	Composition (%)	Number of Project	Amount	Composition (%)
U. S. A.	41	61,141	81.73	81	137,424	21.18	17	16,267	6.1
Japan	17	5,914	7.91	767	468,783	72.27	51	146,411	55.4
Panama	4	3,764	5.04	4	3,879	0.60	1	17,603	6.7
W. Germany	3	794	1.06	7	8,567	1.32	5	3,496	1.3
Hong Kong	1	600	0.81	8	3,796	0.58	1	855	0.3
Netherlands	1	108	0.14	2	7,250	1.12	1	49,854	18.9
Italy	1	44	0.05	0	810		-	250	0.1
Switzerland				1	154		1	49	-
United Kingdom				2	120	0.58	1	2,588	1.0
Canada				1	29		1	209	-
France				2	2,650		2	1,450	0.5
Others	2	2,435	3.26	4	15,229	2.35	4	25,627	9.7
Total	70	74,800	100	879	648,691	100.00	95	264,659	100.00

Sources: Economic Planning Board (EPB).

As to the main motive on the part of foreign investors in South Korea, one can note a gradual shift in emphasis over time from the penetration of the well-protected and fast-growing local markets to the attractiveness of cheap labor. According to the report of an early sample survey on foreign investment climate and motives conducted by the Federation of Korean Industry (FKI) in 1968,[1] the main motive of more than half of the ninety firms covered in the survey was stated as taking advantage of expected growth in Korea's local markets. More than half of the firms covered answered that the relative political stability together with the friendly attitude of the Korean people towards foreign investors was an important factor for their decision to invest in South Korea. Nearly a quarter of the firms covered said that their main motive was to take advantage of low-cost labor in Korea for exports to overseas markets. Some combination of these motives as the first or second in priority was frequently found in this survey. In contrast, a 1974 survey conducted by a Korea University team gives a clear-cut indication of reversal in priority in the majority of the firms covered.[2] More than one third of the 135

firms covered in the survey stated that their top-most motive was to take advantage of favorable labor supply, namely, low wages for unskilled and semi-skilled workers. A little more than 15 percent of the firms said that their main motive was to secure overseas export markets through Korea-based production. Thus, the combination of favorable labor supply conditions and export-market orientation was stated as the main motive in about half of the firms covered. About 9 percent of the firms answered that their main motive was to secure growing Korean markets for their products. Another 10 percent of the firms indicated that a high rate of economic growth in Korea was the main consideration. The combination of growing local economy in general and growing local markets in particular was found only in less than 20 percent of the firms surveyed. In short, between 1968 and 1974, there was a clear-cut shift in motive for foreign private investment in South Korea from the import-substituting, local-market oriented type to the labor-intensive, export-market-oriented type. The relative ratio between the former and the latter motives was 50:20 in percentage in 1968 and 20:50 in percentage at the beginning of 1974, showing an exact reversal in

priority.

According to a Korea Development Institute (KDI) survey on joint-venture firms conducted in early 1974, the main motive on the part of Korean partners for going into joint ventures with foreign partners was found to be closely related to overseas export marketing.[3] Nearly one half of the domestic partners of the 94 firms covered in the KDI survey answered that they entered into joint-ventures with foreign partners in order to export their products directly to their foreign partner firms (23.2 percent) and to utilize foreign brand names and management know-how for export marketing (20.6 percent). About one third of the firms stated that they entered into joint-venture agreements mainly to import advanced technology (21.4 percent) or to secure import of raw materials (10.7 percent). In many cases, these motives for the import of technology and raw materials were found to be related to export-oriented production. Only 8.9 percent of the domestic partners mentioned that their main motive was to secure better competitive position in the local markets. Another 8.9 percent of the domestic partners mentioned supplementing capital shortage as their main motive. By and

large, the percentage distribution of the main motives on the parts of the domestic partners in joint-venture firms as reported in the KDI survey is closely in line with those on the parts of foreign investors as reported in the Korea University survey. This indicates that the main motives for investment from the standpoint of both foreign investors and their local partners has been increasingly oriented toward overseas exports in recent years.

Table I-3, based on a recent survey on all the 883 foreign firms registered with the Bureau of Foreign Investment Promotion of the EPB, shows the trend in types of foreign private investment projects by motive or market orientation. The type-A firms are those operating in agricultural and mining sectors to exploit basic raw materials. They are almost negligible in terms of the share in total value of investment (only 0.3 percent) and the number of firms (only 0.9 percent). The type-B firms are those operating in manufacturing and service sectors with the main motive of taking advantage of sheltered local markets for products of import-substitution type. The type-C firms are those which are primarily export-oriented in both manufacturing and service

TABLE I-3

TYPES OF FOREIGN PRIVATE INVESTMENT PROJECTS

Unit: thousand U.S. dollars
(Number of Firms)

Year	Types of Foreign Investment A	B	C	Total
1962		1,370 (1)		1,370 (1)
1963		5,442 (3)		5,442 (3)
1964		404 (3)		404 (3)
1965	26 (1)	19,937 (3)	175 (2)	20,138 (6)
1966	102 (2)	266 (3)	1,847 (4)	2,215 (9)
1967		12,129 (10)	7,755 (6)	19,884 (16)
1968	400 (3)	3,383 (11)	20,384 (14)	24,167 (28)
sub-total (1962-68)	528 (6)	42,931 (34)	30,161 (26)	73,620 (66)
%	.72%(9.09%)	58.31%(51.52%)	40.97%(39.39%)	100%(100%)
1969		7,612 (11)	20,581 (20)	28,193 (31)
1970		17,819 (27)	43,627 (58)	61,446 (85)
1971		18,988 (17)	26,221 (66)	45,209 (83)
1972	281 (1)	46,385 (10)	63,775(147)	110,441(158)
1973	490 (1)	127,046 (35)	137,143(320)	264,679(356)
1974	1,210 (1)	89,538 (20)	49,155(149)	139,903(170)
sub-total (1969-74)	1,981 (3)	307,388(120)	340,502(760)	649,871(883)
%	.31%(0.34%)	47.3%(13.6%)	52.39%(86.06%)	100%(100%)
Total (1962-74)	2,509 (9)	350,319(154)	370,663(786)	723,491(949)
%	.35%(0.95%)	48.42%(16.23%)	51.23%(82.82%)	100%(100%)

Notes: A. Exploitation of basic raw materials
B. Penetration of portected markets
C. Exploitation of cheap labor
Figures in parentheses are the number of Foreign firms.

Sources: Economic Planning Board (EPB): The Current State of Foreign Private Investment Projects (as of the end of 1974) (in Korean)

sectors. It is interesting to note that while the type-B investments were dominant in terms of their share in total value of investment (58.3 percent) and in the number of firms (51.5 percent) for the period of 1962-68, it was the type-C investments which became dominant in terms of their share in the total amount of investment (52.3 percent) and the number of firms (86.6 percent) for the period of 1969-1974. For the entire period of 1962-74, the type-C investments accounted for 51.2 percent of the total amount of direct foreign private investment and 86.1 percent of the total number of foreign firms operating at the end of 1974. The average size of the type-B investment, that is, investment for the local market-oriented import-substituting products such as chemicals, metals, and petroleum products, increased from US$1.262 million for the period of 1962-68 to US$2.561 million for the period of 1969-74, while the that of the type-C investment, that is, investment for labor-intensive products for export such as electronic and textile products, decreased from US$1.16 million to US$0.45 million between these two periods. In other words, the average size of projects increased twice for the type-B investment and decreased to one seventh for the type-C

investment between the two periods.

Industrial Distribution

The industrial distribution of direct foreign private investment in terms of the amount and number of investment projects for the period of 1962-74 is shown in Table I-4. Of the total investment of US$723,491,000 at the end of 1974, 76.2 percent was in manufacturing sector, 21.8 percent in social overhead capital and services sectors, 1.7 percent in agriculture and fishery sector, and 0.3 percent in mining sector, respectively. Three industries in manufacturing sector which attracted most foreign private investment were textiles and apparels (19.5 percent of the total amount of investment in all sectors), electric and electronic components (16.1 percent of the same), and chemicals (10.3 percent of the same). The industrial distribution in terms of the number of projects corresponds roughly to the industrial distribution in terms of the amount of investment, as already shown above. It was machinery and miscellaneous industries that had the smallest average size of investment. It was petroleum industry that had the largest average size of in-

TABLE I-4

INDUSTRIAL DISTRIBUTION OF DIRECT FOREIGN PRIVATE INVESTMENT

Unit : thousand U.S. dollars

	1962-1973		1974		Total		
	Number of Project	Amount	Number of Project	Amount	Number of Project	Amount	Composition (%)
Agriculture Forestry & Fishery	42	8,330	9	3,751	51	12,018	1.7
Agriculture & Forestry	19	2,721	7	1,953	26	4,674	0.7
Fishery	23	5,609	2	1,798	25	7,407	1.0
Mining	10	1,421	3	513	13	1,934	0.3
Manufacturing	691	432,339	149	117,953	840	550,292	76.2
Foods	14	7,406	2	480	16	7,886	1.1
Textiles & Apparels	89	106,921	18	34,155	107	144,076	19.5
Lumber & Wood Products	9	2,734	1	200	10	2,934	0.4
Chemicals	90	62,918	18	10,732	108	73,650	10.3
Petroleum and its Products	4	32,973	2	17,647	6	50,620	7.0
Clay and its Products	23	17,820	3	1,299	26	19,119	2.7
Metals & Metal Products	51	35,956	14	9,173	65	45,129	6.3
Machinery & Machine Parts	91	23,072	22	7,669	113	30,741	4.1
Electric & Electronic Machinery	158	93,896	49	22,436	207	116,331	16.1
Transportation equipment	8	25,839	4	10,785	12	36,724	5.1
Others	154	22,804	16	3,378	170	26,182	3.6
Social overhead Capital & Services	36	141,498	9	17,686	45	159,184	21.8
Money & Banking	2	6,519	-	686	2	7,205	1.0
Construction & Related Service	5	2,906	4	4,700	9	7,606	0.8
Electric Power	1	18,825	-	-	1	18,825	2.6
Transportation & Storage	6	3,344	-	-	6	3,344	0.5
Hotel & Tourism	22	109,904	5	12,300	27	122,204	16.9
Total	779	583,588	170	139,903	949	723,491	100.0

Sources: Economic Planning Board (EPB): The Current State of Foreign Private Investment Projects (as of the end of 1974) (in Korean)

vestment.

The size distribution of direct foreign investors classified by industry is shown in Table I-5. It is worth observing here that the foreign firms with investments of less than US$500,000 accounted for 82.2 percent of all the foreign firms operating at the end of 1974. The rest of the firms fell into the range of investments between US$500,000 and over US$10,000,000. Thus, we can see that size distribution was extremely skewed leftward. It is the range of investments between US$100,000 and US$500,000 in which an absolute majority (about 38 percent) of firms in manufacturing sector and a predominant majority (44 percent) of firms in agriculture and fishery sector were concentrated. Nearly one half of firms in social overhead capital and service sectors were concentrated in the range between US$1,000,000 and US$5,000,000.

Table I-6 shows the trend in the industrial distribution of foreign firms in manufacturing sector by ownership type and by market orientation. The type of ownership is divided into joint-venture firms and wholly-owned subsidiaries, and the market orientation into local- and export-market orientation. The joint-venture company was the predominant form of owner-

TABLE I-5

SIZE DISTRIBUTION OF THE FOREIGN INVESTMENT PROJECTS BY INDUSTRY

Unit : number of projects, %

Industry \ Size	0-50*	51-100	101-500	501-1000	1001-5000	5001-10000	10000-	Sum
Agriculture Forestry & Fishery	12	7	16					35(3.96)
Agriculture & Forestry	6	4	12					22(2.49)
Fishery	6	3	4					13(1.47)
Mining	2	1	2	1				6(0.68)
Manufacturing	186	210	292	38	43	7	6	779(88.12)
Foods	6	9	19	2		2		38(4.30)
Textiles & Apparels	25	33	45	5	6		1	115(13.01)
Lumber & Wood Products	6	6	4					16(1.81)
Chemicals	17	21	21	7	4	3	1	74(8.37)
Petroleum and its Products			3		3		1	7(0.79)
Clay and its Products	1	2	7					10(1.13)
Metals and Metal Products	19	26	43	6	11			105(11.88)
Machinery & Machine Parts	19	18	34	1	4	1		77(8.71)
Electric & Electronic Machinery	37	45	71	14	12		1	180(20.36)
Transportation equipment	1	8	5	1	3		1	18(2.04)
Others	55	42	39	1		1	1	139(15.72)
Social overhead Capital	1	10	7	7	27	6	4	64(7.24)
Money & Banking					2			2(0.23)
Construction & Related Service	1	5	4	4	6	2	2	24(2.71)
Electric Power								
Transportation & Storage		2	3	1	2			8(0.90)
Hotel & Tourism					1			1(0.11)
Others		3	2	2	16	4	2	29(3.28)
Total	201 (22.74)	228 (25.79)	317 (35.86)	45 (5.09)	70 (7.92)	13 (1.47)	10 (1.13)	884

* : thousand U.S. dollars

Sources: Economic Planning Board: "The Current State of Foreign Private Investment Projects (as of the end of 1974)".

TABLE I-6

TREND IN INDUSTRIAL DISTRIBUTION OF FOREIGN FIRMS IN MANUFACTURING SECTOR BY OWNERSHIP TYPE AND MARKET ORIENTATION

		(1962-1968)			(1969-1974)			(1962-1974)		
		J	W	Total	J	W	Total	J	W	Total
Foods	D	2		2	3		3	5		5
	E	1		1	26	1	27	27	1	28
Textiles & Apparels	D	3		3	1		1	4		4
	E	6		6	98	2	100	104	3	107
Lumber & Wood Products	D				1		1	1		1
	E				15		15	15		15
Chemicals	D	6	1	7	16	1	17	22	2	24
	E	4		4	61	1	62	64	1	65
Petroleum and its Products	D	3		3	4		4	7		7
	E				1	1	2	1	1	2
Clay and its Products	D				2		2	2		2
	E	1		1	12	4	16	13	4	17
Metals & Metal Products	D	3		3	6		6	8		8
	E	1	1	2	35	1	36	36	2	38
Machinery & Machine Parts	D	5		5	9		9	15		15
	E	1		1	86	1	87	87	1	88
Electric & Electronic Machinery	D		2	2	2		2	1	2	3
	E	1	6	7	153	17	170	154	23	177
Transportation equipment	D	1		1				1		1
	E					1	1		1	1
Others	D	3		3	3	2	5	6	2	8
	E	2	1	3	107	7	114	109	8	117
Sub-Total	D	26	3	29	47	3	50	73	6	79
	E	17	8	25	593	37	630	610	45	655
							Total	683	51	734

Notes: J = Joint-venture firm
W = Wholly-owned subsidiary
D = Domestic-market orientation
E = Export-market orientation

Sources: Economic Planning Board: "The Current State of Foreign Private Investment Projects (as of the end of 1974)".

ship, and export-market orientation the overiding motive for foreign investment throughout the period of 1962-74. Of 735 foreign firms in manufacturing sector, 684 firms were joint-venture companies as of the end of 1974. In other words, 93 percent of all the firms in manufacturing sector were of joint-venture form. The same was also true in each of industries within manufacturing sector. Of 735 foreign firms, 655 firms could be considered to be export-oriented. In other words, 89.1 percent of all the firms in manufacturing sector exported all or a predominant portion of their products to overseas markets. The number of export-oriented firms was far greater than that of local-market-oriented firms in all manufacturing industries except petroleum industry which was strictly local-market-oriented.

It is quite interesting to note a changing pattern of the relative importance of ownership form and market orientation between the period of 1962-68 and that of 1969-74. Only 54 foreign-invested firms were in operation during the period of 1962-68. Chemicals, electronic parts, machinery, and textiles were the industries which attracted most foreign investments during this period. 43 out of the 54 firms were

incorporated in the form of joint-ventures, of which 26 firms could be considered to be local-market-oriented. More than one half of these 54 firms were local-market-oriented. The combination of joint-venture form of ownership and local-market-orientation was a characteristic feature of foreign-invested firms in such import-substitution industries as chemicals, petroleum, and machinery. 8 out of the 11 wholly-owned firms, which were concentrated in electronic components industry, were exclusively export-oriented. 680 foreign-invested firms were established during the period of 1969-74. This means that as compared with 54 firms in total during the first six-year period (1962-68), the number of foreign firms increased about 12.6 times during the second six-year period (1969-74). Once again, the prevailing form of ownership was a joint-venture company during the latter period. 640 out of total 680 foreign firms were joint-venture companies. A striking feature of foreign investments during this period was that 630 out of total 680 foreign firms were classified as being export-market-oriented, whereas more than half of foreign firms during the first period were considered to be local-market oriented. Thus, the predominance

of export-market-orientation was clearly demonstrated, regardless of the form of ownership (whether joint-venture firms or wholly-owned firms) and throughout all industries in manufacturing sector during the second period.

II. ECONOMIC IMPACT ON SOUTH KOREA OF DIRECT FOREIGN PRIVATE INVESTMENT

Production and Exports: Output Mix

Our estimates of the output and value added of foreign-invested firms for 1974 were based on the Economic Planning Board's special survey on activities of foreign-invested firms operating for 1974 and the Lank of Korea's survey on operations of local and foreign business establishments operating for the same year. The value of output (sales) of all the foreign-invested firms in South Korea at the end of 1974 was estimated to amount to 1,067.5 billion won, or US$2,688.9 million, and the value of value added of all the foreign-invested firms was estimated to amount 446.3 billion won, or approximately 42 percent of their total output, as shown in Table II-1.

The share of foreign-invested firms in total output in mining and manufacturing sector was about 10 percent at the end of 1974, as shown in Table II-2. Their shares in several key industries were quite substantial, as shown in the last column of Table II-2. Foreign firms accounted for 100 per-

TABLE II-1

OUTPUT AND VALUE ADDED OF FOREIGN FIRMS BY INDUSTRY
(as of the end of 1974)

Unit: one million won

	(a) Output	(b) Value Added
Agriculture Forestry & Fishery	23,368	9,733
Agriculture & Forestry	20,718	8,183
Fishery	2,649	1,550
Mining	390	295
Manufacturing	777,602	247,236
Foods	16,667	3,883
Textiles & Apparels	53,288	15,933
Lumber & Wood Products	3,371	977
Chemicals and its Products	143,655	55,163
Petroleum	28,564	9,197
Clay and its Products	59,385	24,941
Metals & Metal Products	111,906	27,640
Machinery & Machine Parts	42,399	11,532
Electric & Electronic Machinery	280,563	84,730
Transportation equipment	5,927	1,760
Others	31,873	11,474
Social Overnead Capital	266,226	189,082
Money & Banking		
Construction & Related Service	4,468	1,778
Electric Power		
Transportation & Storage	3,448	1,837
Hotel & Tourism	258,309	185,466
Total	1,067,587	446,348

Notes and Sources (a) : Output data were estimated from EPB, "Special Survey on Operations of Foreign Private Firms in Korea (as of the end of 1974)

(b) : The ratio of value added to output for manufacturing sector was obtained from the Bank of Korea, The Financial Statements Analysis for 1974.
The ratio for other than manufacturing sector was obtained from the 1973 input-output table (1973).

TABLE II-2

SHARE OF FOREIGN FIRMS IN OUTPUT OF MINING AND MANUFACTURING SECTOR (as of the end of 1974)

Unit : thousand won

Industry	(A) Output of Foreign Firms	(B) Output of Industry	% of (A)/(B)
Mining	390,892	148,109,025	0.26
Manufacturing	777,602,071	6,853,183,113	11.00
Foods	16,667,119	1,076,595,563	1.50
Textiles & Apparels	53,288,259	1,062,345,227	5.00
Lumber & Wood Products	3,371,771	462,178,654	0.72
Chemicals and its Products	143,655,909	914,002,209	15.00
Petroleum	28,564,320	28,564,320	100.00
Clay and its Products	59,385,304	207,078,228	28.60
Metals & Metal Products	111,906,863	297,672,256	37.00
Machinery & Machine Parts	42,399,484	223,140,601	19.00
Electric & Electronic Machinery	280,563,284	634,711,410	44.00
Transportation Equipment	5,927,288	502,436,935	1.17
Others	31,873,200	305,648,992	10.40
Total	777,992,963	7,001,292,138	10.00

Source: Economic Planning Board: "Special Survey on Operations of Foreign Private Firms in Korea (as of the end of 1974)".

cent of petroleum, 44 percent of electric and electronic products, 37 percent of metal products, 28 percent of clay and its products, and 19 percent of general machine parts.

We have noted in Table I-3 that the direction and pattern of direct foreign private investment exhibits a sharp shift around the end of 1968 from local-market-oriented, and import-substituting investment to export-oriented investment. Such a shift can be clearly seen in the trend in share of foreign-invested firms in South Korea's total exports, as presented in Table II-3. While it was only 1.8 percent on the average between 1962 and 1968, the share of foreign firms in South Korea's total exports (both commodity and invisible exports) rose to 13 percent in 1969, to 21.3 percent in 1972, and to 27.8 percent in 1974, respectively. That foreign-invested firms have made substantial contributions to the country's exports is quite evident in view of the fact that their share in total export was more than 20 percent on the average between 1962 and 1974. As shown in Table II-4, exports by foreign firms at the end of 1974 amounted to US$1.24 billion, occupying about 28 percent of South Korea's total commodity exports. The share of foreign firms in the country's exports

TABLE II-3

TREND IN SHARE OF FOREIGN FIRMS IN EXPORTS

Unit : million U.S. dollars

	62-68	69	70	71	72	73	74	Total
Exports of Foreign Firms (A)	27.6	81.9	114.7	191.1	346.3	664.6	1,240.7	2,666.9
Total Exports (B)	1,461.7	622.5	835.1	1,067.6	1,624.1	3,225.0	4,460.4	13,296.4
% of (A/B)	(1.8)	(13.1)	(13.7)	(17.9)	(21.3)	(20.6)	(27.8)	(20.1)

Sources : Economic Planning Board: "The Current State of Foreign Private Investment Projects (as of the end of 1974)".
The Bank of Korea : Economic Statistics Yearbook, 1965, 1970 and 1975.

of manufactures was about 31 percent at the end of 1974. About 98 percent of exports by foreign firms in 1974 were manufactures. Foreign-invested firms in South Korea are the major exporters of machine parts, electronic components, metal products, and several other manufactures. As of the end of 1974, the share of foreign firms in South Korea's exports was 93.4 percent in machinery and machine parts, 88.6 percent in electric and electronic products, 84.2 percent in metal products, 73.9 percent in clay products, 57.3 percent in chemicals, and 56.2 percent in petroleum and its products, respectively.

More than one third (33.9 percent) of exports by foreign firms was concentrated in electric and electronic products. Chemical products and textile products occupied 18 percent and 15 percent of total exports by foreign firms, respectively, as shown in Table II-4.

It is also interesting to note in Table II-5 that 55.4 percent of exports by foreign firms was shared by Japanese firms, 33.7 percent by U.S. firms, and 10.9 percent by others, respectively, at the end of 1974. Our rough estimate shows that about 30 percent of output of foreign-invested firms

TABLE II-4

SHARE OF FOREIGN FIRMS IN EXPORTS AND OUTPUT BY INDUSTRY
(as of the end of 1974)

Unit : million U.S. dollars

Industry	Exports by Foreign Firms (A)	(% Composition)	Total Exports by South Korea (B)	Percentage of Ratio ((A)/(B))
Agriculture Forestry & Fishery	27.7	(2.2)	299.7	9.2
Agriculture & Forestry	11.6	(0.9)	103.6	11.2
Fishery	16.1	(1.3)	196.1	8.2
Mining	1.1	(0.0)	296.4	0.3
Manufacturing	1,213.7	(97.8)	3,866.3	31.4
Foods	4.2	(0.3)	48.9	8.6
Textiles & Apparels	187.6	(15.1)	1,536.9	12.2
Lumber & Wood Products	6.0	(0.4)	279.5	2.1
Chemicals	222.9	(18.0)	389.3	57.3
Petroleum and its Products	57.0	(4.6)	101.4	56.2
Clay and its Products	62.3	(5.0)	84.3	73.9
Metals & Metal Products	101.0	(8.1)	120.0	84.2
Machinery & Machine Parts	71.9	(5.8)	77.0	93.4
Electric & Electronic Machinery	420.3	(33.9)	474.2	88.6
Transportation Equipment	0.9	(0.0)	121.1	0.7
Others	79.6	(6.4)	631.7	12.6
Commodity Trade Total	1,240.7	(0.0)	4,460.4	27.8
Social Overhead Capital & Services	0.5	(0.0)	987.3	0.1
Money & Banking	-	-	-	-
Construction & Related Service	0.5	(0.0)	206.2	0.2
Electric Power	-	-	-	-
Transportation & Storage	-	-	227.2	-
Hotel & Tourism	-	-	153.3	-
Others	-	-	400.6	-
Invisible Trade	0.5	(0.0)	987.3	0.1
Total	1,241.2	(100.0)	5,447.7	22.8

Sources : The Bank of Korea: Economic Statistics Yearbook, 1975
Economic Planning Board: "Special Survey on Operations of Foreign Private Firms in Korea (as of the end of 1974)".

TABLE II-5

1974 EXPORTS BY FOREIGN FIRMS

(BY THEIR NATIONALITY)

Unit : million U.S. dollars

Nationality	Exports	Composition (%)
U.S.A.	418.3	33.7
Japan	687.1	55.4
Others	135.8	
Total	1,241.2	10.9

Sources: Economic Planning Board: "The Current State of Foreign Private Investment Projects (as of the end of 1974)".

in all sectors, and about 40 percent of output of foreign firms in manufacturing sector, was exported. The national average ratio of exports to output in manufacturing sector as a whole was 22.5 percent for 1974. It is worth noting in Table II-3 that exports by foreign firms was growing far faster than South Korea's total exports. Exports by foreign firms grew by 10.8 times over the period of 1970-1974, while South Korea's total exports grew by 5.3 times over the same period. In other words, foreign firms' exports grew twice as fast as South Korea's total exports.

Choice of Technology : Input Mix

A meaningful measurement of the choice of technology would be machinery and equipment per worker at firm level. We will examine to what extent macninery and equipment per worker (K/L) at firm level differs between foreign and local firms, between industries, and between export-oriented foreign firms and local-market-oriented foreign firms.

Table II-6 compares several aspects of the performance of foreign-invested firms and local firms in manufacturing sector over the period of 1973 and 1974. Data in this table have

TABLE II-6

COMPARATIVE PERFORMANCE OF FOREIGN AND LOCAL FIRMS

Unit : thousand won, %

	1973		1974	
	foreign firm	local firm	foreign firm	local firm
Machinery & equipment per worker	2,008	901	2,161.6	1,010
Value added per worker (labour productivity)	2,158	1,208	2,404.0	1,323
Ratio of net profit to value added (%)	33.9	28.1	23.3	22.0
Annual average wage level per worker	537	396	703.7	498
Ratio of personnel expenses to value added (%)	24.9	32.8	29.3	37.7
Growth rate of number of workers (%)	25.39	21.42	14.04	10.14

Source : The Bank of Korea: Financial Statements Analysis for 1974.

been compiled from the individual financial statements of local and foreign firms (about 1,200 firms in total) covered in annual sample surveys conducted by the Bank of Korea Research Department. The first row of Table II-6 shows that machinery and equipment per worker (K/L) of foreign-invested firms as a whole was at least twice as much as that of local firms. It also shows that labor productivity in terms of value added per worker of foreign firms was 1.8 times higher than that of local firms on the average in both years. Table II-7 sets out some measures on comparative performance of foreign and local firms classified by industry in manufacturing sector for 1974. While the over-all K/L ratio of foreign firms was twice that of local firms, it is interesting to note that the K/L ratio of foreign firms was lower than that of local firms in foods, wood products, clay products, metal products, and other miscellaneous industries. The K/L ratio was not much different between foreign and local firms in petroleum and electric and electronic machinery industries. The K/L ratio was much higher in foreign firms than in local firms in the remaining industries including chemicals, textiles, machinery, and transportation equipment.

Data in Table II-7 confirm our expectation that the K/L ratio of foreign export firms is far lower than that of foreign firms with local-market-orientation. It is worth observing that the over-all K/L ratio of foreign firms of Type-B (local-market-oriented) was 4.8 times that of foreign firms of Type-C (export-oriented firm) throughout all economic sectors. With an exception of fishery industry (mostly export-oriented deep-sea fishing firms), the K/L ratio of foreign export firms was much lower than that of local-market-oriented foreign firms in all industries in non-agricultural sector. The average ratio of K/L of foreign export firms was only half of that of local-market-oriented foreign firms for manufacturing sector as a whole. The same proportion was 37.7 percent for social overhead and services sector as a whole. The impact on employment of foreign export firms is quite considerable in view of their low K/L ratio and high output share (40 percent of total output of all foreign firms were exported).

According to a comparative study on the behavior of foreign export and local export firms in South Korea,[4] there was no clear evidence as to whether foreign export firms were more

TABLE II-7

COMPARATIVE PERFORMANCE OF FOREIGN AND LOCAL FIRMS
BY INDUSTRY IN MANUFACTURING SECTOR FOR 1974

Unit : thousand won, %

Industry	Machinery & Equipment per Worker		Value Added per Worker (Labour Productivity)		Ratio of Net Profit to Value Added (%)	
	Foreign Firm	Local Firm	Foreign Firm	Local Firm	Foreign Firm	Local Firm
Foods	686.3	798	1,397.3	1,543	15.9	18.1
Textiles & Apparels	1,737.5	867	1,808.8	849	13.3	9.4
Lumber & Wood Products	433.5	790	638.0	707	-19.7	2.9
Chemicals	6,825.7	1,330	6,279.7	1,876	26.3	26.4
Petroleum and its Products	12,728.6	11,477	10,486.8	10,028	12.0	14.4
Clay and its Products	587.0	2,068	1,749.0	2,065	32.9	14.5
Metals & Metal Products	2,605.7	4,708	2,629.3	4,141	30.1	52.9
Machinery & Machine Parts	578.0	383	1,197.4	960	20.9	18.9
Electric & Electronic Machinery	308.0	296	849.0	978	9.5	21.8
Transportation Equipment	1,515.7	694	2,263.2	1,596	27.6	19.4
Others	67.5	97	429.9	448	22.1	15.8
Total in Manufacturing Sector	2,161.6	1,010	2,404.0	1,323	23.3	22.0

TABLE II-7 - continued

Industry	Personnel Expenses per Worker		Ratio of Personal Expenses to Value Added (%)		Growth Rate of Number of Workers (%)	
	Foreign Firm	Local Firm	Foreign Firm	Local Firm	Foreign Firm	Local Firm
Foods	491.9	611	35.2	39.6	8.65	6.18
Textiles & Apparels	514.4	369	27.7	43.5	8.09	9.68
Lumber & Wood Products	449.0	626	78.0	54.0	3.56	2.00
Chemicals	1,229.0	596	19.6	31.7	6.00	12.94
Petroleum and its Products	1,818.2	1,744	17.3	17.4	0.18	-1.01
Clay and its Products	590.5	633	39.5	30.7	5.33	11.85
Metals & Metal Products	655.1	698	24.9	16.8	26.65	17.18
Machinery & Machine Parts	630.4	462	32.7	48.1	20.70	14.97
Electric & Electronic Machinery	573.2	487	67.5	49.8	21.04	13.59
Transportation Equipment	887.7	670	39.2	42.0	22.14	17.90
Others	251.9	290	58.6	64.8	24.41	6.28
Total in Manufacturing Sector	703.7	498	29.3	37.7	14.04	10.14

Notes : The exchange rate of the Korean currency Won to U.S. dollar for 1974 was 400 to 1.

Source : The Bank of Korea: Financial Statements Analysis for 1974.

"mechanized" than Korean export firms. When we accept this finding, we can then infer from Table II-8 that foreign firms with local-market-orientation should have a higher level of machinery and equipment per worker than their domestic counterparts in the manufacturing sector as a whole.

Data in Table II-9, which have been gathered from the author's own inquiries and interviews, would reflect the performance of leading joint-venture firms in typical import-substitution industries. We note from this table that the K/L ratio tended to be far higher than an industry average.

According to the author's own inquiries, it is evident that many foreign-invested firms tended to adapt their production techniques (or input mix) to local conditions (local structure of factor costs, per capita income level, etc.). Local adaptation of production techniques by foreign-invested firms has been evident in both export- and local-market-oriented industries, including automobile, electronic components, machine tools, and other manufacturing industries.

Direct Employment Generation

Table II-10 shows the trend in the percentage share of

TABLE II-8

THE PERFORMANCE OF FOREIGN-INVESTED FIRMS (1974)

Unit : (K/L): thousand won
(Q/L): million won

	(a) Capital Labor Ratio (K/L)		(b) Output per Worker (Q/L)	
	Type-B Firm	Type-C Firm	Type-B Firm	Type-C Firm
Agriculture Forestry & Fishery	1.59	19.44	14.13	3.42
Agriculture & Forestry	1.02	0.85	14.13	3.53
Fishery	4.86	89.53	-	3.04
Mining	-	2.33	-	1.20
Manufacturing	124.54	56.21	12.43	4.47
Foods	236.10	0.35	5.50	4.85
Textiles & Apparels	2,855.25	15.01	1.00	2.27
Lumber & Wood Products	-	0.65	-	2.98
Chemicals and its Products	39.16	20.49	14.22	11.62
Petroleum	21.21	20.56	23.95	6.70
Clay and its Products	2.98	0.83	1.02	8.80
Metals & Metal Products	858.28	158.84	48.44	8.82
Machinery & Machine Parts	1.00	1.06	1.28	3.02
Electric & Electronic Machinery	161.66	7.05	2.07	3.77
Transportation Equipment	7.93	0.27	82.45	2.70
Others	65.88	2.17	0.68	2.50
Social Overhead Capital	34.36	0.91	2.42	141.39
Money & Banking	0.83	-	-	-
Construction & Related Service	0.89	0.23	4.14	2.41
Electric Power	-	-	-	-
Transportation & Storage	2.19	-	3.18	-
Hotel & Tourism	116.52	0.98	-	155.70
Total	88.71	18.39	9.44	6.09

TABLE II-8 - continued

	(c) The Ratio of Exports to Output	(d) Share of Type-C Firms in Output of Foreign Firms	(e) Share of Foreign Firms in Total Exports (%)
Agriculture Forestry & Fishery	0.36	0.60	9.2
Agriculture & Forestry	0.29	0.56	11.2
Fishery	0.86	1.00	8.2
Mining	1.00	1.00	0.3
Manufacturing	0.65	0.83	31.4
Foods	0.37	0.89	8.6
Textiles & Apparels	0.74	0.97	12.2
Lumber & Wood Products	0.95	1.00	2.1
Chemicals and its Products	0.19	0.68	57.3
Petroleum	0.68	0.92	56.2
Clay and its Products	0.57	1.00	73.9
Metals & Metal Products	0.32	0.80	84.2
Machinery & Machine Parts	0.62	0.97	93.4
Electric & Electronic Machinery	0.45	0.80	88.6
Transportation Equipment	0.31	0.60	0.7
Others	0.50	1.00	12.6
Social Overhead Capital	0.01	0.03	0.1
Money & Banking	-	-	-
Construction & Related Service	0.05	0.91	0.2
Electric Power	-	-	-
Transportation & Storage	-	1.00	-
Hotel & Tourism	0.01	1.00	-
Total	0.53	0.90*	22.8

Notes : Type-B : domestic market-oriented firms.
Type-C : export market-oriented firms.
* : The percentage figure is the share in output of Type-C firms which produce goods for both export and local sales. The net ratio of exports to output of foreign firms is about 40 percent.

Sources : Economic Planning Board: "Special Survey on Operations of Foreign Private Firms in Korea" (as of the end of 1974).

TABLE II-9

PERFORMANCE OF JOINT-VENTURE FIRMS IN IMPORT-SUBSTITUTION INDUSTRIES: SELECTED CASES (1974)

Unit : US$1,000, Person

Code	Name of Firm	Name of Product	Output (Q)	Export	Imported Inputs	Employment (L)					
						Clerical	Technical	Productive	Sub-Total (L)	Foreigner	Total
H.	Chemicals	Chemical Fibre Base	66,507	6,307	7,612	113	379	-	492	5	497
D.	Petrochemicals	A.N. Monomer	24,413	-	6,626	46	55	164	265	3	268
	General Motor Company	Motor Vehicles	34,117	-	27,235	1,076	2,868	130	4,074	9	4,083
Y.	Chemicals	Complex Fertilizer	41,530	-	15,292	134	579	90	803	4	804
C.	Hotel	Tourism & Hotel	-	5,050	198	86	602	13	701	10	711
D.	Petroleum	Refinery Products	56,668	55,043	583,393	377	1,632	40	2,049	13	2,062
H.	Nylon	Nylon and Tire-cord	18,789	23,544	21,282	243	196	965	1,404	-	1,404
D.	Foods	Coffee	6,459	-	3,503	74	19	60	153	1	154
D.	Aluminum	Aluminum	12,073	1,857	6,053	137	286	21	444	4	448

TABLE II-9 - continued

Code name of firm	Investment for Plant and Equipment (K)	Plant and Equipment per Worker (K/L)	Output per Worker (O/L)
H. Chemicals	6,150	12.37	134.00
D. Petrochemicals	1,900	7.09	91.09
General Motor Company	52,400	12.83	8.35
Y. Chemicals	13,000	16.17	51.65
C. Hotel	2,200	3.09	-
D. Petroleum	29,889	14.46	27.48
H. Nylon	4,514	3.22	13.38
D. Foods	529	3.44	41.94
D. Aluminum	2,600	6.80	26.95

Notes : The data in this table were gathered from the author's own inquiries and interviews.

TABLE II-10

TREND IN SHARE OF FOREIGN FIRMS IN EMPLOYMENT
IN MINING AND MANUFACTURING SECTOR

Unit : thousand persons, %

Year	(A) Employment by Foreign Firms	(B) Employment in Mining and Manufacturing Sector	% of $(\frac{(A)}{(B)})$
1970	36.8	937.6	3%
1971	58.3	923.2	6%
1972	109.0	1,045.2	10%
1973	144.4	1,227.5	11%
1974	151.7	1,306.9	11%

Sources: Economic Planning Board: "Special Survey on Operations of Foreign Private Firms in Korea (as of the end of 1974)".
Economic Planning Board: Report on Mining and Manufacturing Census (Series I), 1973.
The Bank of Korea: Monthly Economic Statistics, Jan.-Feb., 1974.

foreign-invested firms in employment in mining and manufacturing sector during the period from 1970 to 1974. The percentage share of foreign firms increased from 3 percent in 1970, to 6 percent in 1971, and to 11 percent in 1974. Data in Table II-11, which have been derived from the special survey on foreign firms for 1974, show a detailed breakdown of employment (the number of workers) by industry and by nationality. The total number of all workers, both foreign and domestic, employed by all the foreign firms in South Korea at the end of 1974 reached 163,357, of which 162,108 (or 99.2 percent of the total) were Korean workers, and 1,249 foreigners. Clérical workers occupied about 18.2 percent of all workers. More than 93 percent of workers employed by foreign firms were concentrated in manufacturing sector. Agricultural, social-overhead, and other service sectors shared about 3 percent each. Looking at the industrial breakdown of employment, 38.9 percent of the total number of Korean workers employed by foreign firms was employed in electric and electronic machinery industry, 15.8 percent in textiles and apparels industry, 9.4 percent in chemicals industry, and 7.4 percent in machinery and machine parts industry, respectively. U.S. and Japanese firms in South

TABLE II-11

BREAKDOWN OF EMPLOYMENT BY FOREIGN FIRMS BY INDUSTRY AND NATIONALITY FOR 1974

Unit : person

A. Industry	Foreigner	Korean			Composition Ratio	Total
		Clerical Job	Manual Job	Total		
Agriculture Forestry & Fishery	29	583	4,759	5,342	3.3	5,376
Agriculture & Forestry	26	371	4,400	4,771	2.9	4,797
Fishery	3	212	359	571	0.4	574
Mining	7	62	257	319	0.2	326
Manufacturing	1,160	27,631	123,809	151,440	93.6	152,926
Foods	34	551	3,581	4,132	2.5	4,166
Textiles & Apparels	143	3,143	22,584	25,691	15.8	25,834
Lumber & Wood Products	9	148	962	1,110	0.7	1,119
Chemicals	173	5,565	9,674	15,239	9.4	15,412
Petroleum and Other Fuels	62	1,102	6,442	7,544	5.5	7,606
Clay and its Products	13	3,964	1,925	5,889	3.7	5,902
Metals & Metal Products	173	2,198	8,612	10,810	6.7	10,983
Machinery & Machine Parts	85	3,065	8,957	12,022	7.4	12,107
Electric & Electronic Machinery	420	7,202	55,883	63,085	38.9	63,505
Transportation Equipment	13	213	1,384	1,597	0.1	1,610
Others	35	480	3,841	4,321	2.7	4,356
Social Overhead Capital	53	1,325	3,682	5,007	3.1	5,060
Money & Banking		15		15		15
Construction & Related Service	27	756	1,776	2,532	1.6	2,559
Electric Power						
Transportation & Storage	23	441	1,776	2,154	1.3	2,177
Hotel & Tourism	3	113	140	253	0.2	256
Total	1,249	29,601	132,507	162,108	100.0	163,357
B. Nationality of Firms						
U.S.A.	165	11,982	34,152	46,134	28.5	46,299
Japan	1,020	16,039	87,584	103,623	63.9	104,643
Others	64	1,580	10,771	12,351	7.6	12,415

Sources : Economic Planning Board: "Special Survey on Operations of Foreign Private Firms in Korea (as of the end of 1974)".

Korea employed 28.5 percent and 63.9 percent of all Korean workers employed in foreign firms, respectively.

The share of foreign-invested firms in employment classified by industry in mining and manufacturing sector is presented in Table II-12. Whereas only 319 workers were employed by foreign-invested firms in mining (accounting for only .04 percent of mine workers), the share of foreign-invested firms in employment in manufacturing industries as a whole was 11.6 percent at the end of 1974. Foreign-invested firms in some manufacturing industries have made a considerable contribution to employment creation, as shown in the last column of Table II-12. The share in employment of foreign firms was 70.3 percent in petroleum industry, 58.6 percent in electric and electronic machinery industry, 29.7 percent in machinery industry, and 11.7 percent in metal industry at the end of 1974. Thus, the impact of foreign firms on direct employment creation was quite considerable in manufacturing sector as a whole and absolutely predominant in several key manufacturing industries.

Indirect Effect on Employment through Purchase of Intermediate Inputs

TABLE II-12

SHARE OF FOREIGN FIRMS IN EMPLOYMENT
IN MINING AND MANUFACTURING SECTORS

Unit : person

Industry	Number of Workers of Foreign Firms (A)	Number of Workers in Mining & Manufacturing (B)	Ratio of (A)/(B)
Mining	319	73,921	0.004
Manufacturing	151,440	1,306,906	0.116
Foods	4,132	158,512	0.026
Textiles & Apparels	25,691	317,176	0.081
Lumber & Wood Products	1,110	58,551	0.019
Chemicals	15,239	132,622	0.115
Petroleum and its Products	7,544	10,736	0.703
Clay and its Products	5,889	57,620	0.102
Metals & Metal Products	10,810	92,167	0.117
Machinery & Machine Parts	12,022	40,482	0.297
Electric & Electronic Machinery	63,085	107,679	0.586
Transportation Equipment	1,597	59,831	0.027
Others	4,321	270,092	0.016

Notes : 1. The number of workers in mining and manufacturing sector is that of workers in industrial establishments with five or more workers.
2. The number of workers in foreign firms is that of workers in all foreign firms in operation in South Korea as of the end of 1974.

Sources : Economic Planning Board: "Special survey on operations of foreign private firms in Korea (as of the end of 1974)".
Economic Planning Board: Report on Mining and Manufacturing Census (Series I), 1973
The Bank of Korea: Monthly Economic Statistics; Jan. - Feb., 1974.

It would be ideal to measure the extent to which foreign-invested firms in one industrial sector may have indirectly affected employment in other industrial sectors through their purchase of intermediate inputs produced locally. Information on proportion of local materials in purchases of intermediate inputs by foreign firms is very much scarce. From the existing studies, we know the following two points about this proportion. The first point is that the Korean export firms tended to import less than foreign export firms and to purchase more from other Korean firms than do their foreign counterparts producing the same products.[5] But we simply do not know how much more the foreign firms import than their local counterparts. The second point is that more than 50 percent of joint-venture companies covered in a sample survey answered that they imported more than 50 percent of their total imports of raw materials from their partner companies or their foreign partners' countries.[6] It is certain from these two points that foreign-invested firms tended to import more than Korean firms, but we simply do not know the extent of this difference.

From the 1973 input-output table of the Korean economy we can obtain the share of imported inputs in total interme-

diate inputs in each industrial sector. The input-output tables do not allow us to isolate the share of foreign-invested firms from that of a given industry. Table II-13 sets out proportions of intermediate inputs to output of all manufacturing industries (column (a)) and proportion of imported intermediate inputs to output (column (b)). We can discern no clear difference in the proportion of intermediate inputs to output between the foreign-invested and the local firms. The proportion of imported intermediate inputs to output, that is, "imported input co-efficients" in an input-output language, is quite high throughout most manufacturing industries, showing high import dependency for raw materials. For instance, petroleum and electronic machinery industries have imported more than 60 percent of their intermediate inputs. Transportation equipment, machinery and metal industries have also imported from one quarter to one third of their intermediate inputs. Of course, one must take into account the fact that foreign-invested firms tended to import much more than their local counterparts.

Instead of making any attempt to directly measure purchases of intermediate inputs by foreign firms, we will utilize input-output data, particularly direct and total (direct and

TABLE II-13

PROPORTION OF INTERMEDIATE INPUTS TO MANUFACTURING OUTPUT

	(a) Proportion of Intermediate Inputs to Output		(b) Proportion of Imported Intermediate Inputs to Output
	Foreign Firm	Local Firm	All Firms
Foods	.863	.835	.248
Textiles & Apparels	.673	.769	.175
Lumber & Wood Products	.868	.919	.069
Chemicals and its Products	.888	.815	.122
Petroleum and its Products	.822	.918	.499
Clay and its Products	.820	.690	.077
Metals & Metal Products	.785	.721	.218
Machinery & Machine Parts	.714	.737	.196
Electric & Electronic Machinery	.718	.738	.448
Transportation Equipment	.674	.746	.227
Others	.740	.733	.129
Average	.849	.781	

Sources: (a) The Bank of Korea: Financial Statements Analysis for 1974.

(b) The Bank of Korea: "1973 Input-Output Table of 56 sectors" for 1973, in 1973 Input-Output Tables, 1975.

indirect) labor coefficients of those industries in which foreign firms have made direct investments. Table II-14 shows our estimates of indirect impact on employment from input-output analysis. The indirect impact on employment for the economy as a whole was estimated to amount to about 60 percent of employment directly created. In other words, 162 thousand jobs (in terms of the number of workers) directly created by foreign firms during 1974 led to additional 101 thousand jobs through the intersectoral relationships shown in the 1973 input-output table. The total number of jobs which were directly and indirectly created by foreign-invested firms during 1974 had to be 263 thousand jobs which constitute about 20 percent of total employment in South Korea's mining and manufacturing sector. Industries with high multiplier (or linkage) effects relative to initial employment creation are petroleum and its products (3.25), services of various kinds (2.0-2.8), livestock (1.9), food-processing (1.8), electric and electronic parts (1.7), and clay and its products (1.6). Each figure in parenthesis indicates the ratio of total (direct and indirect) labor coefficient /the total number of workers directly and indirectly created per unit (one million won) of output/ over direct labor coefficient /the number of workers

TABLE II-14

INPUT-OUTPUT ANALYSIS OF INDIRECT IMPACT
ON EMPLOYMENT

	(a) Total (Direct and Indirect) Labor Coefficient	(b) Direct Labor Coefficient	(c) (a)/(b)
Agriculture Forestry & Fishery			
Livestock	5.2403	2.6207	1.9996
Fishery	1.4714	1.0001	1.4699
Mining	1.8603	1.3947	1.3338
Manufacturing			
Foods	.5521	0.2948	1.8728
Textiles & Apparels	.7216	0.5694	1.2673
Lumber & Wood Products	1.2361	1.1467	1.0780
Chemicals and its Products	.1796	0.1509	1.1902
Petroleum	.0691	0.0212	3.2594
Clay and its Products	.7978	0.4744	1.6817
Metals & Metal Products	.7393	0.5439	1.3593
Machinery & Machine Parts	.6593	0.5478	1.2035
Electric & Electronic Machinery	.6135	0.3442	1.7824
Transportation Equipment	.5205	0.3933	1.3234
Others	1.1832	0.8715	1.3577
Social Overhead Capital			
Money & Banking	1.1807	0.6142	1.9223
Construction & Related Service	.6428	0.6428	1
Electric Power	.2762	0.1104	2.5018
Transportation & Storage	1.9103	0.6647	2.8739
Hotel & Tourism	4.2941	1.8462	2.3259

TABLE II-14 - continued

	Direct Employment Created (Person)	Indirect Employment Created (Person) ((f)-(d))	Total (Direct and Indirect) Employment Created (Person) ((d)x(c))
Agriculture Forestry & Fishery	5,342	5,037	10,379
Livestock	4,771	4,769	9,540
Fishery	571	268	839
Mining	319	106	425
Manufacturing	151,440	92,068	243,528
Foods	4,132	3,606	7,738
Textiles & Apparels	25,691	6,867	32,558
Lumber & Wood Products	1,110	87	1,197
Chemicals and its Products	15,239	2,898	18,137
Petroleum	7,544	17,045	24,589
Clay and its Products	5,889	4,015	9,904
Metals & Metal Products	10,810	3,884	14,694
Machinery & Machine Parts	12,022	2,446	14,468
Electric & Electronic Machinery	63,085	49,358	112,443
Transportation Equipment	1,597	516	2,113
Others	4,321	1,366	5,687
Social Overhead Capital	4,959	4,392	9,351
Money & Banking	15	14	29
Construction & Related Service	2,532	0	2,532
Electric Power	-	-	-
Transportation & Storage	2,154	4,036	6,190
Hotel & Tourism	258	342	600
Total	162,060	101,623	263,683

Sources : (a) and (b) : The Bank of Korea: The Input-Output Table (56 sectors), 1973 Input-Output Tables (Seoul, 1975).

(d) : Economic Planning Board: "Special Survey on Operations of Foreign Private Firms in Korea" (as of the end of 1974).

directly required per unit (one million won) of output7. To the extent that foreign firms tend to import a higher proportion of intermediate inputs then the industry average, our estimate of the size of indirect effects, that is, 60 percent of the size of initial (direct) employment, should be adjusted downward.

As Table II-14 shows, industries with high <u>total</u> labor coefficients are livestock (5.24), hotel & tourism (4.29), transportation (1.91), mining (1.86), wood products (1.23), and miscellaneous manufacturing (1.18) in that order. Those with low <u>total</u> labor coefficients are typical import-substitution industries including petroleum (.069), chemicals (.179), electricity (.276), and transportation equipment (.520) in that order. It is worth noting that import-substitution industries tenied to have very low <u>total</u> labor coefficient.

Transfer of Technology

Information on training of local personnel, both managerial and production workers, offered by foreign firms is scarce. Statistical data on the mobility of workers between foreign and local firms is almost non-existent. Some direct and in-

direct information available from previous survey studies and from the author's own interview studies will be pulled together to evaluate probable effects of foreign firms on transfer of technology.

Table II-15 shows an ever-increasing trend in South Korea's technological licensing agreements with foreign firms. Of 581 agreements made by the end of 1975, 397 cases were made with Japanese firms, and 122 cases with the U.S. firms. As of the end of 1975, royalty payments paid to foreign firms amounted to US$66.34 million. Distribution of technological licensing agreements and royalty payments by industry as of the end of 1975 is presented in Table II-16. Technical licensing agreements have been concentrated in petroleum and chemicals, electric and electronic parts, machinery, and communications industries.

According to a sample survey on operations of foreign-invested firms in South Korea,[7] nearly 45 percent of the 86 foreign firms covered in the survey made technological assistance agreements with their parent companies at the end of 1973. In addition to technological assistance agreements, these firms purchased foreign patents (20.9 percent) and obtained

TABLE II-15

TREND IN APPROVED TECHNOLOGICAL LICENSING AGREEMENTS BY COUNTRY
(as of the end of 1975)

Country / Year	U.S.A.	Japan	W. Germany	Others	Total	Royalty Payments (Thousand U.S. dollars)
1962	3			2	5	
1963	1			1	2	
1964			1		1	305.6
1965	3				3	
1966	5	10	2		17	
1967	9	23	1		33	725.7
1968	13	32	1	3	49	1,344.2
1969	13	44	1	2	60	2,118.3
1970	18	60	1	3	82	2,399.2
1971	6	35	1	3	45	4,277.4
1972	11	32	3	3	49	6,769.2
1973	12	45	5		62	10,367.5
1974	14	56	2	8	80	19,513.8
1975	14	60	1	18	93	18,522.4
Total	122	397	19	43	581	66,343.3

Sources : Economic Planning Board: "The Present State of Technological Licensing Agreements and Royalty Payments (1962-1975)" (in Korean).

TABLE II-16

DISTRIBUTION OF TECHNOLOGICAL LICENSING AGREEMENTS BY INDUSTRY AND ROYALTY PAYMENTS

Unit : US$1,000 (%)

Industry/Year	No. of Items	62-66	67	68	69	70	71
Agriculture, Forestry & Fishery	7			7.0	31.0	61.5	203.9
Agriculture & Livestocks	7			7.0	31.0	61.5	203.9
Manufacturing	542	303.6	372.5	1,331.6	1,556.9	1,649.6	3,696.0
Food	11	21.0			5.0	50.7	112.2
Pulps and Papers	6						
Textiles	14	149.4	33.6	26.3	22.7	25.0	21.1
Chemical Fibres	15		12.1	69.8	97.8	45.0	477.7
Ceranic & Cement	11			56.0		76.0	20.0
Petroleum & Chemicals	108	17.3	132.6	776.0	755.1	766.6	740.8
Pharmaceuticals	26	35.9	62.5	56.2	75.5	114.0	64.0
Metals	58		12.0	14.2	14.9	26.7	920.2
Electric & Electronics	117	80.0	119.7	302.8	331.8	259.4	673.8
Machinery	146			30.3	254.1	289.2	653.7
Shipbuilding	4						12.5
Others	26						
Social Overhead Capital & Service	32	2.0	353.2	5.6	530.4	688.1	377.5
Electricity	4		288.2		416.0	249.0	160.0
Communications	24		65.0	3.6	114.4	342.1	217.5
Construction	4	2.0		2.0		97.0	
Total	581	305.6	725.7	1,344.2	2,118.3	2,399.2	4,277.4

TABLE II-16 - continued

Industry/Year	72	73	74	75	Total (%)	Royalty Payment per Case
Agriculture, Forestry & Fishery	80.5	78.0	108.2		570.1(0.9)	81.4
Agriculture & Livestocks	80.5	78.0	108.2		570.1	81.4
Manufacturing	6,306.6	10,131.5	19,047.6	17,479.3	61,875.2(93.3)	114.2
Food	124.0	231.7	483.5	513.0	1,542.1(2.5)	140.1
Pulps and Papers				77.0	77.0(0.1)	12.8
Textiles	17.7	52.8	108.4	991.3	548.3(0.9)	39.2
Chemical Fibres	1,141.1	870.3	732.0	2,386.4	5,829.2(9.4)	388.6
Ceranic & Cement	11.0	61.0	12.6	32.5	269.1(0.4)	24.5
Petroleum & Chemicals	1,921.0	3,204.5	5,694.9	4,410.5	18,419.3(29.8)	170.5
Pharmaceuticals	86.0	81.3	286.9	167.2	1,029.5(1.7)	39.6
Metals	971.4	1,978.0	5,033.9	3,615.7	12,587.0(20.3)	217.0
Electric & Electronics	829.3	958.5	1,449.8	2,452.3	7,457.4(12.1)	63.7
Machinery	635.1	2,061.6	4,040.5	3,039.9	11,004.4(17.8)	75.4
Shipbuilding	570.0	576.0	1,110.8	661.0	2,917.8(4.7)	729.5
Others		55.8	94.3	32.5	195.1(0.3)	7.5
Social Overhead Capital & Service	382.1	158.0	358.0	1,043.1	3,898.0(5.8)	121.8
Electricity	161.0			720.0	1,994.2	498.6
Communications	221.1	158.0	358.0	175.9	1,655.6	68.98
Construction				147.2	248.2	62.1
Total	6,769.2	10,367.5	19,513.8	18,522.4	66,343.8(100.0)	114.2

Sources : Economic Planning Board : "The Present State of Technological Licensing Agreements and Royalty Payments (1962-1975)" (in Korean).

their parent companies' technical assistance for assembl and maintenance of plants (10.5 percent). And also they made managerial contracts with foreign firms (9.3 percen

However, my own crude estimate based on the EPB's 1975 survey data suggests that somewhere between 20 and percent of all foreign-invested firms in South Korea hav formally made one or more technological licensing agreem with their parent companies and/or other foreign firms a of the end of 1975.

Then, to what extent has technology been transferre from foreign technical personnel to local personnel at t level of individual firms? Information on this point is really scarce. According to the same study cited above, responses from the foreign-invested firms were largely affirmative. Of the 86 firms covered in the study, 55 firms (64 percent) gave affirmative answers on the transf of technology from foreign personnel to their local count parts. It is worth noting, however, that 18 firms (19.4 percent), mostly joint-venture firms, replied negatively or even mentioned the existence of barriers to transfer of technology.

My own interview studies were concentrated into com-

parison of the behavior of foreign export firms and loc market-oriented foreign firms, with respect to the matte technology transfer. For my interview study, I chose tw foreign export firms (a wholly owned subsidiary of a U.S. electronics firm and a joint-venture electronics export firm) and two local-market-oriented foreign firms (a joi venture chemical company and a joint-venture pharmaceuti company). The existence of local market demand and the desire to increase market share through trade-mark arrang ment and/or raw material monopsony were the main factors for making licensing agreements on the parts of local-mar oriented, pharmaceutical and chemical firms. The prospec for growing export market demand and the desire to improv export marketing and technical sofistication in productio of export items were pointed out as the main consideratio for making technical licensing arrangements on the parts labor-intersive, export-oriented, electronics foreign fir

The intensity of technical assistance was much great in the case of chemical and pharmaceutical firms than in electronics firms. Overseas training of local personnel and on-the-job-training programs were far intensive and t

length of stay of foreign technical personnel is sufficie long in the case of chemical and pharmaceutical firms. In the case of electronic product firms, systematic overs training program for local personnel was almost non-exist except for occasional short-run business trips by manager personnel to overseas parent companies.

The proportion of technical and professional personn in total manpower was about 50 to 60 percent in the chemi and pharmaceutical foreign firms, while it was only 15 pe cent in the electronic product export firms. This implie that, as far as personnel is concerned, the former would be better prepared for transfer of technology than the la

The proportion of college graduates in total number workers was 40 to 70 percent in the chemical and pharmace tical firms, whereas it was only 5 percent in the electro product export firms. Once again, the former would be fa better equipped for technology transfer between foreign a local personnel than the latter.

It was found that foreign personnel was concentrated areas of engineering services, financial management, overseas marketing, and supply of imported raw materials. It took about one to two years on the average for the chemica

and pharmaceutical firms to completely take over a given technological process from foreign partners. It would t three to five years until the technology transferred may utilized with maximum efficiency. In the case of electr product export firms, it took two to three months for pr duction workers to acquire simple skills in assembly lin and two to five years for technical personnel to master overall process of technical knowledge and skills involv It is interesting to note that many foreign-invested fir did not bother to register with the Patent Office of the Korean Government for one reason or another. One reason was that foreign-invested firms did not see any danger o imitation or duplication by other firms of their technic know-how because of the complexity of technical processe and huge capital requirements involved. Another reason i the fear that well-guarded secret of technical processes would be open to public by ways of patent regislations.

In our interview study, there was no evidence for spill-over effect of transfer of technology through mobil of production workers and technical personnel between for and local firms. This point was also noted by a previous comparative study on foreign and local export firms: that

is, very few Koreans, both production workers and manager staff, who had worked for foreign firms later worked for Korean company.[9)]

Profit Behavior

Our crude estimate shows that the total value of declared profits of foreign-invested firms during 1974 amou to 126,254 million won or US$315.5 million, occupying 28 percent of the value added. Table II-17 presents the industrial distribution of profits during the year of 1974. The ratio of profit to value added was over 39 percent in services sector including banking and tourism and 19.5 per cent in manufacturing sector. Among manufacturing industries, those in which foreign firms declared their net pro fit rates above 20 percent of their value added were chemicals, clay and its products, metals, machinery, transportation equipment, and miscellaneous manufactures. Those in which foreign firms declared very low profit rates are wood products (-19.7 percent) and electric and electronic machinery (9.5 percent). A better measure of actual profit positions of foreign firms would be the sum of net profits and depreciation allowance rather than net profit alone, in vie

TABLE II-17

INDUSTRIAL DISTRIBUTION OF PROFITS OF FOREIGN FIRMS
(as of the end of 1974)

Unit : one million won

	(A) Value Added	(B) Profits
Agriculture Forestry & Fishery	9,733	2,995
Agriculture & Forestry	8,183	2,563
Fishery	1,550	431
Mining	295	88
Manufacturing	247,236	48,162
Foods	3,883	617
Textiles & Apparels	15,933	2,119
Lumber & Wood Products	977	-192
Chemicals and its Products	55,163	14,508
Petroleum	9,197	1,103
Clay and its Products	24,941	8,205
Metals & Metal Products	27,640	8,319
Machinery & Machine Parts	11,532	2,410
Electric & Electronic Machinery	84,730	8,049
Transportation Equipment	1,760	485
Others	11,474	2,535
Social Overhead Capital	189,082	75,007
Money & Banking		
Construction & Related Service	1,778	151
Electric Power		
Transportation & Storage	1,837	298
Hotel & Tourism	185,466	74,557
Total	446,348	126,254

Sources : EPB, "Special Survey on Operations of Foreign Pri Firms in Korea" (as of the end of 1974).
The Bank of Korea, The Financial Statements Analy for 1974.

of the fact that many firms tend to reduce estimates of n profits and to boost depreciation allowance and other pay ments. Table II-18 compares the ratio to value added of this sum between foreign and local firms. The ratio to v added of the sum of the two items is 45.9 percent in fore firms and 40.5 percent in local firms, showing a higher r of gross profits for foreign firms on the average. It is worth noting that except lumber, metals, and electronic p ducts, profits of foreign-invested firms were greater tha those of their local counterparts in manufacturing industr Those foreign-invested firms with the ratio of more than 4 percent were in textiles, metals, chemicals, clay products and petroleum.

Table II-19 compares the appropriations of the surplu of foreign and local firms, as reported in the Bank of Kor annual survey for 1974. For manufacturing sector as a who foreign firms paid out 43.9 percent of their surplus in th form of dividends and bonus. The corresponding percentage share of local firms was 28.4 percent. Foreign firms in import-substitution industries tended to pay out a very hi proportion of their surplus in the form of dividends: the ratio was 52.9 percent in chemicals, 51.3 percent in petro

TABLE II-18

THE RATIO OF THE SUM OF PROFITS AND DEPRECIATION ALLOWANCES OF THE FOREIGN-INVESTED AND THE LOCAL FIRMS (1974)

Unit : %

	Foreign	Loc
Foods	33.4	36.
Textiles & Apparels	52.2	34.
Lumber & Wood Products	-9.0	25.
Chemicals and its Products	50.4	45.
Petroleum	40.5	41.
Clay and its Products	48.0	43.
Metals & Metal Products	55.7	70.
Machinery & Machine Parts	30.7	30.
Electric & Electronic Machinery	22.0	33.
Transportation Equipment	35.8	30.
Others	27.3	22.
Average	45.9	40.

Note: Others include financial expenses, rents, and bad deb

Sources : The Bank of Korea: Financial Statements Analysis for 1974.

TABLE II-19

APPROPRIATION OF SURPLUS OF FOREIGN INVESTED FIRMS (1974)

Unit : %

	In-enterprise Reserves		Declared Dividends and Bonus		Reserve for Income Tax		Others	
	Foreign	Local	Foreign	Local	Foreign	Local	Foreign	Local
Foods	34.1	25.5	3.8	41.3	3.6	24.6	59.5	8.6
Textiles & Apparels	9.0	20.6	21.7	37.6	20.9	23.3	48.4	18.5
Lumber & Wood Products	-	15.5	1.7	19.4	24.8	16.5	73.5	48.6
Chemicals and its Products	18.5	25.4	52.9	40.5	16.0	22.7	12.6	11.4
Petroleum	23.4	25.6	51.3	48.0	8.5	10.5	16.8	15.9
Clay and its Products	35.9	23.7	21.5	43.2	17.5	18.2	25.1	14.9
Metals & Metal Products	33.3	81.8	34.7	6.6	17.8	7.5	14.2	4.1
Machinery & Machine Parts	26.7	34.2	28.6	24.6	16.8	24.3	17.9	16.9
Electric & Electronic Machinery	50.9	35.1	14.5	22.5	13.8	21.1	20.8	21.3
Transportation Equipment	4.0	25.8	43.1	32.0	13.8	24.9	39.1	17.3
Others	9.6	18.5	13.9	28.9	16.6	25.0	59.9	27.6
Average	20.3	40.1	43.9	28.4	16.1	19.4	19.7	12.1

Sources : The Bank of Korea: Financial Statements Analysis for 1974 (from the individual files).

and 43.1 percent in transportation equipment. Foreign f in export industries tended to have a low proportion of vidends to their surplus: the ratio was 1.7 percent in w product, 14.5 percent in electronic parts, and 13.9 perc in miscellaneous manufactures. In manufacturing sector, foreign firms retained only 20.3 percent of their surplu in the form of reserves, whereas the corresponding ratio local firms was 40.1 percent, twice as much as that for i ign firms. It is also true that import-substituting fore firms retained far less reserves than foreign export firn

In short, foreign firms had a tendency to distribute more dividends and retain far less reserves relative to t surplus than local firms. It is also evident that foreig firms in import-substitution industries distributed more dividends and retained less reserves, relative to their s plus, than those in export industries.

Table II-20 shows the trend in overseas remittance o profits and repatriation of principals by foreign firms d the period of 1965-1974. The number of cases of remittan of profits and repatriation of principals has rapidly inc in recent years. Information on proportion of remitted p fits to total profits is not available. Table II-21 show

TABLE II-20

OVERSEAS REMITTANCE OF PROFITS AND REPATRIATION OF PRINCIPAL BY FOREIGN FIRMS
(as of the end of 1974)

Unit : thousand U.S. dollar

Year	Profits & Dividends		Repatriation of Principal		Tota
	Number of Cases	Amount	Number of Cases	Amount	
1965	1	98	-	-	9
1966	1	229	-	-	22
1967	1	229	-	-	22
1968	4	597	1	19	61
1969	5	5,537	1	200	5,73
1970	8	8,133	1	200	8,33
1971	16	8,325	3	571	8,89
1972	23	8,653	5	2,943	11,59
1973	30	15,375	10	4,166	19,54
1974	55	26,842	17	6,129	32,97
Total	144	74,018	38	14,228	88,24

Sources : Economic Planning Board: "The Current State of For Private Investment Projects (as of the end of 1974

TABLE II-21

REMITTANCE OF PROFITS AND REPATRIATION OF PRINCIPAL
BY FOREIGN FIRM AS PERCENTAGE OF CUMULATIVE FOREIGN INVESTMENT

Unit : thousand U.S. dollars

Year	(a) Sum of Remitted Profit and Repatriation of Principal	(b) Cumulative Foreign Investment	(c) Percentage(annual) of (a)/(b)
1962-1971	24,138	172,516	1.50
1972	11,596	251,309	4.61
1973	19,541	394,635	4.95
1974	32,971	518,723	6.35
Cumulative Total	88,246	518,723	17.01

Note: The estimates of cumulative foreign investment are the sum of foreign investments on the arrival basis, which are, of course, less than the sum of those on the approval basis.

Sources: Economic Planning Board: "The Current State of Foreign Private Investment Projects (as of the end of 1974)".

the annual percentage proportion of the sum of remitted p fits and repatriation of principals to the cumulative tot of foreign investment. For the period of 1962-1974, abou 17 percent of the cumulative total of foreign investment was remitted. The annual remittance as the percentage of cumulative total of direct foreign investment has been a increasing. It was 4.6 percent in 1972, 4.95 percent in and 6.35 percent in 1974. This percentage is likely to i crease since a substantial portion of direct foreign priv investments was made in recent years.

A recent survey study has confirmed our finding that foreign firms tend to pay out a far greater proportion of profits in dividends than local firms.[10] The proportion dividends paid out to net profits was nearly 90 percent i the case of U.S. firms, and 76 percent in the case of Jap firms. It follows from these figures that only a small proportion of profits may have been ploughed back for rei vestment in South Korea.

In addition, many foreign partners in joint-venture firms have been also the parties involved in licensing agr ments. At least one quarter of foreign-invested firms hav

made licensing arrangements with their foreign partner companies and/or other foreign parties. Revenues from licensing arrangements on the parts of foreign partners of foreign-invested firms would constitute a good part of their total profits.

Contributions to Capital Formation

As Table II-22 shows, direct foreign private investment as a source of foreign capital inflow financed only a small portion of domestic capital formation in South Korea during the period of 1959 and 1974. While foreign savings as a whole financed about one quarter of total domestic fixed capital formation for the period of 1959 and 1974, direct foreign private investment occupied about 9.5 percent of total foreign capital inflow and financed only 2.29 percent of total domestic fixed capital formation for the same period. The share of direct foreign private investment in total domestic fixed capital formation was only 0.57 percent during the period of 1959-66, increased to 3.21 percent in 1970, reached a peak of 4.87 percent in 1973, and then decreased to 2.87 percent in 1974. Since direct foreign private in-

TABLE II-22

TREND IN FOREIGN CAPITAL INFLOW AND ITS SHARE IN DOMESTIC FIXED CAPITAL FORMATION

Unit : million U.S. dollars (percentage)

Year	59-66	67	68	69	70	71	72	73	74	Total
Loans	325.0 (7.89)	229.6 (23.63)	338.6 (24.42)	547.6 (30.11)	482.0 (23.43)	648.6 (33.15)	650.9 (33.20)	712.9 (24.26)	932.7 (21.54)	4,867.8 (21.49)
Public Loans	140.8 (3.42)	105.6 (10.41)	70.2 (4.79)	138.9 (7.64)	115.3 (5.60)	303.4 (15.51)	324.4 (16.55)	368.5 (12.54)	316.7 (7.32)	1,883.9 (8.32)
Commercial Loans	184.1 (4.47)	124.0 (12.22)	268.4 (18.32)	408.7 (22.47)	366.7 (17.83)	345.2 (17.64)	326.4 (16.65)	344.4 (11.72)	616.0 (14.22)	2,983.9 (13.17)
Foreign Private Investment	23.8 (0.57)	7.6 (0.74)	19.2 (1.31)	12.7 (0.69)	66.1 (3.21)	42.8 (2.19)	78.8 (4.01)	143.3 (4.87)	124.1 (2.87)	518.0 (2.29)
Total	347.8 (8.45)	237.2 (23.37)	357.8 (24.42)	560.3 (30.80)	548.1 (26.44)	691.4 (35.34)	729.6 (37.21)	856.2 (29.13)	1,056.8 (24.41)	5,386.5 (23.78)
Domestic Fixed Capital Formation	4,114.8 (100%)	1,014.7 (100%)	1,464.9 (100%)	1,818.9 (100%)	2,057.6 (100%)	1,956.4 (100%)	1,960.4 (100%)	2,938.3 (100%)	4,329.1 (100%)	22,655.1 (100%)

Notes : Figures in parentheses are the percentage share of the respective foreign capital in domestic fixed capital formation.

Sources: Economic Planning Board: "The Current State of Foreign Private Investment Projects (as of the end of 1974)"
The Bank of Korea : Economic Statistics Yearbook, 1975.

TABLE II-23

THE PERCENTAGE CONTRIBUTION OF FOREIGN PRIVATE INVESTMENT TO DOMESTIC FIXED CAPITAL FORMATION BY SECTOR

Unit : %

	Agriculture Fishery Forestry	Mining	Manufacturing	Social Overhead Capital	Total
62	-	-	4.39	-	0.90
63	-	-	26.56	-	5.92
64	-	-	0.50	-	0.12
65	0.05	-	29.06	-	7.72
66	0.12	-	4.24	-	1.35
67	-	-	11.81	1.18	0.74
68	0.35	-	13.37	1.73	1.31
69	-	-	7.26	0.19	0.69
70	-	-	6.20	0.25	3.21
71	0.01	-	4.67	0.62	2.19
72	0.12	-	14.90	0.07	4.01
73	0.84	15.08	14.17	6.05	4.87
74	0.26	0.23	4.47	3.07	2.87
Average	0.32	5.08	9.43	2.15	2.29

Notes: Figures are the percentage of the share of foreign private investment in domestic fixed capital formation in respective sectors.

Sources : Economic Planning Board: "The Current State of Foreign Private Investment Projects (as of the end of 1974)".
The Bank of Korea: Economic Statistics Yearbook, 1975.

vestment was heavily concentrated into manufacturing industries, its share in fixed capital formation in manufacturing sector tended to be relatively high, averaging 9.43 percent for the period of 1962 and 1974, as shown Table II-23. The share of foreign private investment in fixed capital formation in manufacturing sector was as high as 29 percent in 1965, and 14 to 15 percent in the period of 1972 and 1973.

From the above observations, it is evident that direct foreign private investment which is essentially an important form of movement of technical and managerial know-how across national boundaries was insignificant as a source of financing domestic capital formation.

SUMMARY AND CONCLUSIONS

At the end of 1976, the number of foreign-invested firms operating in South Korea was 865, and the total value of direct foreign investment on the basis of approval amounted to US$953.7 million.

The direction and pattern of direct foreign investment from its inception in 1962 to the end of 1974 exhibits a distinct shift from the end of 1968 from import-substituting and U.S.-dominating investment to export-oriented investment in which the share of Japan rapidly increased. During the period of 1962 and 1968, U.S. occupied about 81.7 percent, and Japan 7.9 percent, of total value of direct foreign private investments, and during the period of 1969 and 1974, U.S. occupied 21.2 percent, and Japan 72.3 percent of total value of foreign private investment, respectively. This shift has been reflected in the gradual shift in motives for foreign investment from the penetration of the well-protected and growing local markets to the attractiveness of cheap labor. By the end of 1974, export-oriented foreign firms occupied more than one half of total value of direct foreign investment and 86 percent of total number of foreign

firms. It has been also reflected in the gradual decrease in the average size of foreign investment. By the end of 1974, more than 95 percent of all foreign firms had their equity capital less than US$500,000.

The predominant form of ownership of foreign-invested firms in South Korea is the joint-venture type. 683 of 734 foreign firms operating at the end of 1974 were joint-venture companies. Wholly owned subsidiaries were mostly concentrated in electronics industry.

According to our estimate, the total value of output (sales) of all the foreign-invested firms in South Korea at the end of 1974 amounted to about U.S. $2,689 million, about 42 percent of which was the value of their total value added. The share of foreign-invested firms in total output in mining and manufacturing sector was about 10 percent at the end of 1974. Their output shares in some key industries are quite large: 100 percent in petroleum, 44 percent in electronic products, 37 percent in metal products, and 28 percent in clay products.

Total exports by foreign-invested firms amounted to U.S. $1.24 billion, occupying about 28 percent of South Korea's total commodity exports and about 31 percent of her exports of manufactures. Foreign-invested firms in South Korea are the major exporters of machine parts (93 percent exports of machine parts), electronic components (89 percent), and metal products (84 percent). More than one third of exports by foreign-invested firms was concentrated in electronic products. About 30 percent of the total output of foreign-invested firms in all sectors, and about 40 percent of their output in manufacturing sector, was exported. Foreign firms' exports grew twice as fast as South Korea's total exports during 1970 and 1974.

For manufacturing sector as a whole, machinery and equipment per worker of foreign-invested firms was at least twice as much as that of local firms. The over-all K/L ratio of import-substituting foreign-invested firms was 4.8 times that of foreign export firms. Machinery and equipment per worker in foreign export firms was not much different from that in local export firms. The employment-creating effect of export-oriented firms is quite considerable in

view of the low capital-labor ratio and high output share (90 percent of total output of foreign firms at the end of 1974) of these foreign export firms. In addition, many cases of local adaptation of production techniques by foreign firms in South Korea have been reported in both export and import-substitution industries.

Our estimate of the number of jobs (workers) directly created by foreign-invested firms at the end of 1974 was about 162 thousand local workers, about 11 percent of total number of those workers employed in manufacturing sector.

Our input-output analysis of indirect effect on employment through purchases of locally-produced intermediate inputs by foreign firms indicates that additional 101 thousand jobs, about 60 percent of the direct employment impact, may have been created through multiplier effects of foreign investments. The total (direct and indirect) impact of foreign firms on employment may have been as such as 20 percent of total employment in mining and manufacturing sectors.

It was found that foreign-invested firms tended to import much more than local firms, and that joint-venture firms tended to import a substantial portion of intermediate inputs from their foreign partner companies. Such a high

dependency of foreign firms on their foreign parent companies for the supply (import) of intermediate inputs implies that foreign parent companies are in an effective control of the supply prices of raw materials imported by their subsidiaries and joint-venture companies in South Korea.

Direct foreign private investment, particularly in the form of joint-ventures, is one of the main forms in which technological licensing arrangements have been made. Nearly one quarter of all foreign-invested firms in South Korea have made one or more technological licensing agreements with their parent companies and/or other foreign firms as of the end of 1975. The desire to increase market shares through trade-mark arrangements, raw materials monopsony, and export marketing were pointed out as the main motives for foreign-invested firms to enter licensing arrangements with their foreign counterparts. The intensity of technical assistance in terms of overseas and on-the-job training programs and quality of local personnel was far greater in the case of local-market-oriented foreign-invested chemical and pharmaceutical firms than in that of foreign electronics export firms. There was little evidence for spill-over effects of

technology transfer through mobility of production workers and technical personnel between foreign and local firms.

Foreign firms tended to have higher profits than their local counterparts in most manufacturing industries. Foreign firms as a whole tended to payout a far great proportion of their surplus in dividends and to retain far less reserves relative to their surplus than local firms. The proportion of dividends to net profit was nearly 90 percent in U.S. firms and 76 percent in Japanese firms.

Direct foreign private investment as a source of foreign capital inflow financed only a small portion (2.3 percent) of domestic capital formation during the period from 1959 to 1974. It occupied about 9.5 percent of total inflow of foreign capital over the same period. It was heavily concentrated in manufacturing sector, contributing by 9.4 percent on the average to fixed capital formation in that sector during the period of 1962-1974.

In line with the shift in the direction of foreign investment from local-market-oriented to export-oriented investment around the end of 1968, there was a parallel change in policy thinking and attitudes toward direct foreign private investment. Main policy emphasis during the period

of 1962-1968 was placed by the Korean government on the physical-capital and financial aspects of direct foreign private investment, namely, creation of production capacity in manufacturing sector (contribution by foreign investors to domestic capital formation) on the one hand and the inflow of foreign exchange funds (contribution to balance-of-payments improvement) on the other hand. Incentives to foreign investors during this period were well-protected local markets, guaranteed profit rates, tax concessions, and growth potential of local markets. Policy attitudes and business thinking in South Korea shifted from the "foreign capital" concept to "foreign know-how" concept of direct foreign private investment from the end of 1968 on. Aspects of technology, managerial know-how, overseas marketing, and brand names have been stressed from direct foreign private investment. The predominant majority of foreign-invested firms in South Korea are now export-oriented and are motivated to take advantage of cheap manpower in their pursuit of international comparative advantage. Cheap manpower, growing overseas export markets, and favorable government attitudes are now major incentives to foreign investors. While any attempt towards benefit-cost analysis is beyond the scope of this study, the

costs in terms of potential losses in employment, foregone profits of local entrepreneurs, tax concessions and public expenditure for the benefits of foreign investors, high import dependency, and high technology dependency must be weighted against the kinds of benefits from direct foreign private investment, namely, technological know-how, export-marketing know-how, and other business knowledge and information. Alternative ways of securing the same kinds of benefits, that is, outright technology imports in the forms of licensing agreements, turnkey contracts, and managerial contracts must be taken into account. Increasing trend toward South Korea's technological and other licensing agreements with foreign firms in recent years has implicitly pointed towards the natural direction of shift in emphasis from joint-ventures to direct technology imports in obtaining what the South Korean economy needs most, that is, technological and managerial know-how.

NOTES

*) A portion of this paper is based on findings from my broader related study, The Impact of Multinational Firms on Employment and Incomes: The Case of South Korea, ILO WEP 2-28 Working Paper 12, (Dec. 1978).

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3) C.K. Park, "A Study of The Joint-Venture Investment in Korea," a research paper presented at the KDI-HIID Conference, (Seoul, June, 1974).

4) Benjamin I, Cohen, "Comparative Behavior of Foreign and Domestic Export Firms in a Developing Economy," Review of Economics and Statistics, Vol. LV, No. 2 (May, 1973), p. 196. See also Benjamin I. Cohen, "The Economic Impact of Foreign Investments for the Export of Manufactures: A Tentative Study of South Korea," Economic Growth Center Discussion Paper No. 136, Yale University, Jan. 1972.

5) Benjamin I. Cohen, Ibid.

6) C.K. Park, loc. cit., p. 6.

7) C. Jee, loc. cit., pp. 42-43.

8) Ibid., p. 238.

9) Benjamin I. Cohen, loc. cit., p. 196.

10) C. Jee, loc. cit., pp. 226-227.

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